The DRILLER

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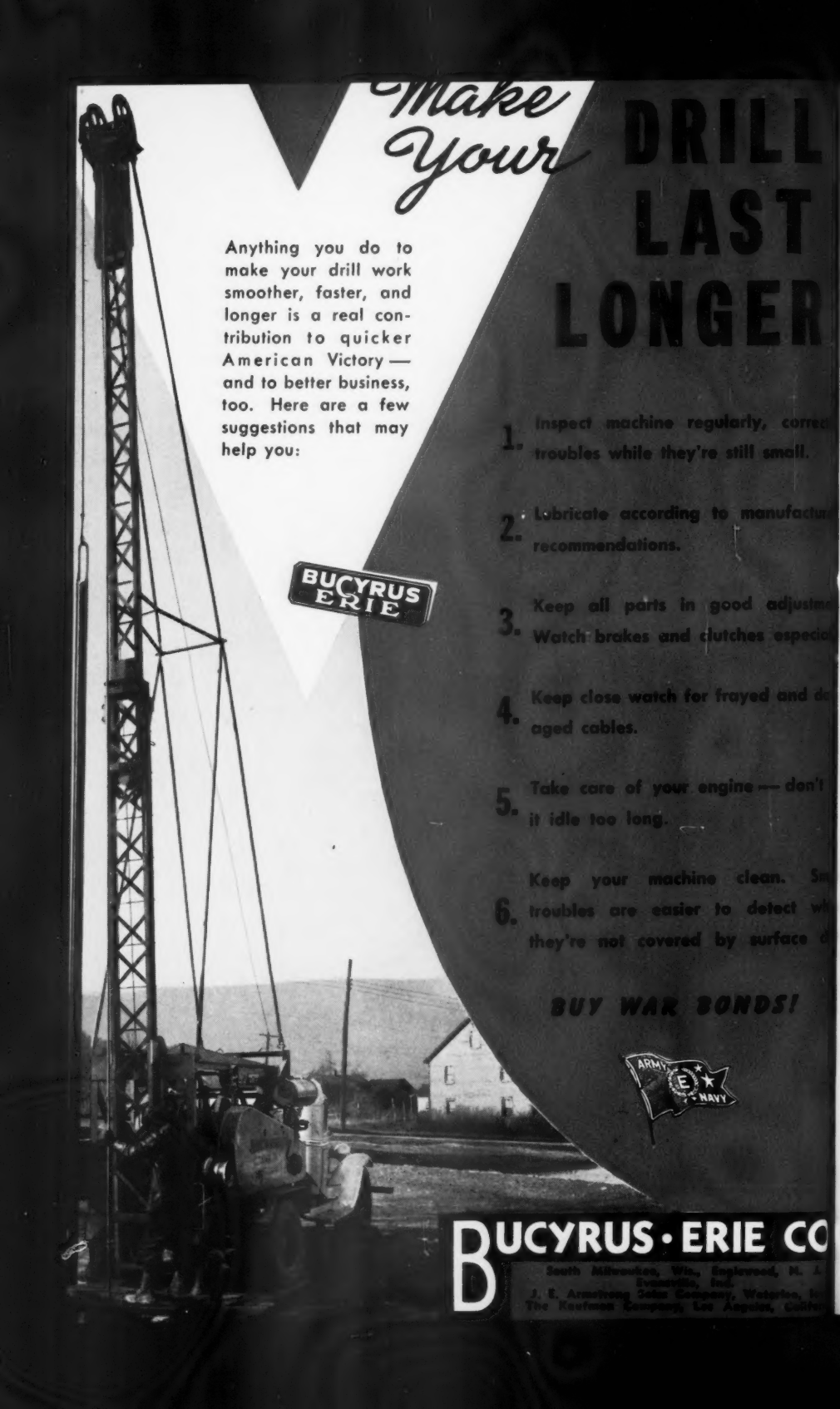
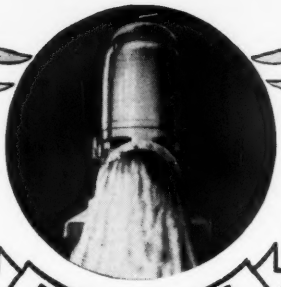

Make Your
DRILL LAST LONGER
Anything you do to make your drill work smoother, faster, and longer is a real contribution to quicker American Victory — and to better business, too. Here are a few suggestions that may help you:
BUCYRUS ERIE
1. Inspect machine regularly, correc troubles while they're still small.
2. Lubricate according to manufactur recommendations.
3. Keep all parts in good adjustme Watch brakes and clutches especia
4. Keep close watch for frayed and da aged cables.
5. Take care of your engine — don't it idle too long.
6. Keep your machine clean. Sm troubles are easier to detect wh they're not covered by surface d
BUY WAR BONDS!
ARMY E NAVY
BUCYRUS-ERIE CO
South Milwaukee, Wis., Englewood, N. J. Evansville, Ind.
J. E. Armstrong Sales Company, Waterloo, I
The Kaufman Company, Los Angeles, Calif



The name that speaks Volumes on the Water-front

10 TO 220,000 G.P.M.

Peerless Pumps

PEERLESS PUMP DIVISION of *Food Machinery Corporation*

301 W. Avenue 26, Los Angeles, 31, Calif. ★ 1250 W. Camden Ave., S. W., Canton, 6, Ohio

OTHER FACTORIES: San Jose 5 and Fresno 16, Calif.

Bentonit to Speed

• In the operations described, Aquagel was mixed in three gallon buckets.

A BENTONITE product for use in drilling oil wells by the rotary process may also be of great value to water well drillers operating cable tools.

When driving pipe through heaving sand which rises 50 feet or more in the pipe it is usually difficult to drill out the plug or get the tools down to the bottom of the pipe before the sand heaves. The more sand bailed out, the tighter the pipe becomes bound by the sand flowing toward the hole and the more difficult driving becomes.

Use of Aquagel to mud up the sand and lubricate the pipe for driving helped produce exceptional pipe-driving time on a California job. Here are details on the results achieved.

Eventually the sand packs around the pipe with accumulated friction until driving fails to move the pipe farther. This condition can be avoided and the pipe driven easily if Aquagel, a processed bentonite, is used to mud up the sand and lubricate the pipe for driving.

A typical job was done in California with a 22-W Bucyrus-Erie drill where Aquagel was used with much success.

The hole was started by driving 8-inch pipe to the 50 foot level and driving 6-inch Drive Pipe to a depth of 88 feet 8 inches the first eight hour shift.

On the second shift the pipe was driven 45 feet 7 inches to the depth of 134 feet 3 inches and the third shift made good progress by driving 40 feet 8 inches in eight hours. But on the fourth shift the sand heaved 50 feet up in the pipe and the progress was reduced to only 11 feet 10 inches for the shift. The driving motion was speeded up to 58 strokes per minute with a tool travel of about 3½ feet and total tool weight of 1,119 pounds.

But the pipe was tight and the sand heaved every time the tools got within five feet of the bottom of the

By G. R. WATSON
Consulting Editor
THE DRILLER

Mud' Used
pe Driving

pipe. Finally the collars were driven over the threads on the top coupling without moving the pipe.

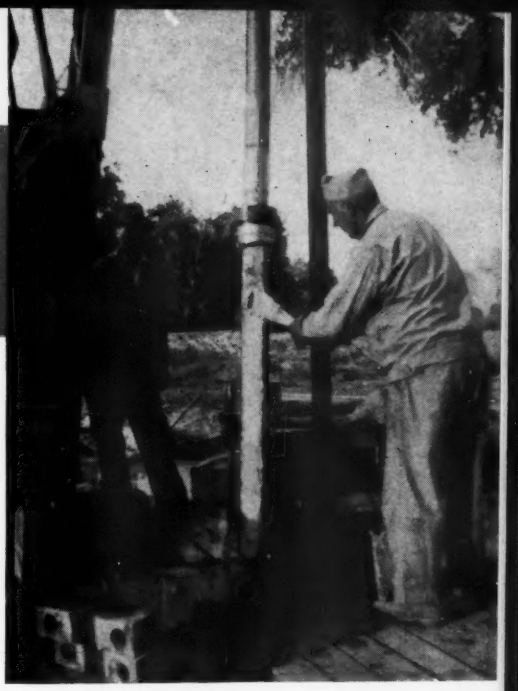
On the fifth shift the tool weight was increased to 1412 pounds by changing stems and the collars were electric welded on the pipe. "Aquagel" was used to mud up the sand and after considerable delay in getting the plug drilled out of the pipe the Aquagel held the walls to permit making 10 to 15 feet of hole below the pipe. Hard driving was necessary to start the pipe but it soon began to go easier and much faster. During the eight hour shift the pipe was driven 62 feet 4 inches to a depth of 249 feet 1 inch.

From there on Aquagel was used every time the tools were run and the pipe continued to go easy to the required depth of 466 feet where the water bearing stratum of gravel was encountered and the well developed by setting a screen. The total time to drive pipe to the 466 feet level, including the time to drive the 8 inch surface pipe was 93½ hours. The hole was wet with the static level of the water variable from 10 feet to 40 feet below the surface.

As shown in the photographs, the Aquagel was mixed in a three gallon bucket and a wood paddle used to pack the Aquagel in the water channels of the bits.

Two 100 pound bags of Aquagel were used to complete the job. In addition to packing the Aquagel in the body of the bits, a thin soup of

(Continued on page 21)



• The operator uses a wooden paddle to pack Aquagel into the water channel of a bit. A thinner mixture was also used to lubricate six-inch pipe.

• Two 100-pound bags such as this were used in driving pipe to a depth of 466 feet.

Cerak & Bro. Put in 'Portable' Pump Pits

YOU can walk into the shop of Albert Cerak & Bro. of White Plains, New York, and pick a pump pit—out of stock. Yes, the Ceraks keep pre-fabricated pump pits in stock, just as they keep pumps, tanks, and other water supply equipment.

The pits run in sizes from four-foot pits to a six-foot pit, and are constructed from poured concrete in four sections plus the roof. This means that the customer can pick out the size of pump house he wants before the well is drilled. Putting in the pump house is an easy matter—a pit of the correct size is dug, the sections are lowered into place, are properly connected, the roof is attached, and there's your pump house.

"Some people laughed when they tried out the first of our portable pump houses, but they soon found that such houses were successful," says Al, who with Paul makes up "Albert Cerak and Brother." "Now we can easily install a pump and

• Five acres of bushes had to be cut through before the Cerak Bucyrus-Erie 21-W could be spotted for the first of a series of test holes drilled for the Government in 1942.

Progressive methods have [illegible] kind [illegible] this company's rigs constanti[illegible] e [illegible] jobs as the one relat[illegible]illing

pump pit in one day, after the pit has been dug out," Paul adds to brother Al's comments.

The Cerak brother team works on a specialty basis—Al handling the drilling and Paul taking charge of all pump work. That's why it was Paul who first developed the portable pump house idea. He wanted to cut the cost of pump installations and felt that his best chance of doing so was by cutting down the price of the pump pit in some way. He took his idea to brother Al and the two of them worked out the plan which they've found so successful.

The Ceraks confine their operations to chiefly two New York counties—Westchester and Putnam. That doesn't mean, however, that they haven't plenty of work. Both counties fall in what can be loosely termed the "suburban area" of New York City—all of which means there are plenty of people who want good wells.

That's one of the reasons why the Ceraks have no trouble keeping their two Bucyrus-Erie well rigs in constant operation. They use a 21-W for their smaller wells (6-inchers are the smallest they do) and a 24-W for larger holes. "These machines have a snappy blow and are just what we need for the hard rock in which all our wells are drilled," says Al, commenting on the fact that he and his brother find Bucyrus-Eries "tops."

"And if you don't think we have hard rock—well, 10 to 15 feet a day is considered good going here and the average footage is only about 7 or 8 feet per day," Al continues. On some wells, he points out, it's necessary to sharpen 3 or 4 bits a day to make five feet.

The Ceraks dress all of their bits on the job as is the custom among drillers in that territory. In that way they have the bits where they're needed, when they're needed.

In addition to their two Bucyrus-Erie rigs, the Cerak Brothers have a

(Continued on page 20)

kind of success which keeps
e of such freakishly tough
lling in a meteorite!

• Another view of the test hole job for the Government. Much of the land was swampy, and had to be planked before the rig could be moved.

The DRILLER

A JOURNAL FOR WATER WELL DRILLERS

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Vol. 18 June, 1944 No. 6

Water Storage Is Above Normal

GROUND water storage is above average over the country, although somewhat less than last year, according to the Water Resources Review of the Geological Survey of the Department of Interior. This conclusion is the result of findings revealed by key observation wells, unaffected by heavy pumping, during the six-month period ending March 31st.

In the East, ground water storage remained considerably below normal for the period. However, exceptional improvement occurred in February and March. As a result of recharge in these months, the outlook for shallow well supplies there appeared favorable.

Throughout most parts of the Middle West, Rocky Mountain Region, and California ground water storage remained normal to high. There was considerable decrease in the Pacific Northwest however. Storage remained low in southeastern Arizona and southwestern New Mexico and declined during the period in central and southern Florida.

In areas of heavy pumping, ground water storage fluctuated chiefly according to withdrawals. For the most part, however, storage in these areas increased during the period as a result of lessened seasonal demands for water.

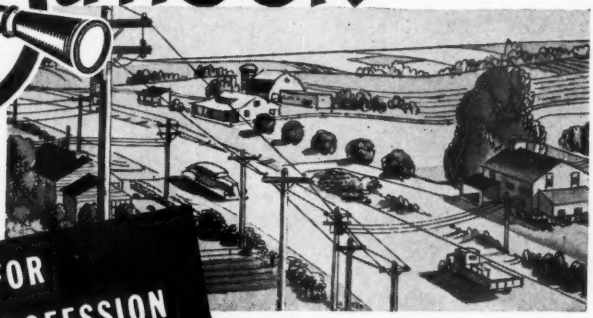
Many military establishments, war industries, and municipalities have established new or additional ground water supplies in the last few years. These new supplies, together with the old supplies, have placed a heavy draft on local ground water storage and declines in water level have resulted, the Review points out.

In most places, however, the rate of decline is lessening as the effect of the withdrawal spreads to areas of recharge and water is drawn to the wells from greater distances. In the few places where local ground water supplies have been over-developed to the extent that storage and the yields of wells suffer, steps are being taken to recharge the formation with surface water through wells or water spreading to effect conservation measures and to convert to other sources of water.

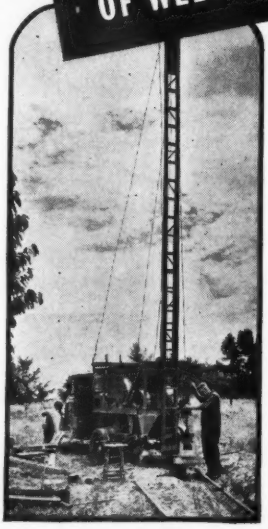
Cover . . .

YOUR WAR BONDS will pave the road to Victory, will bring the men and women of our fighting forces back sooner. That's reason enough for lending your full support to the 5th War Loan drive which begins June 10 and ends July 1st.

Outlook



FOR *Your* PROFESSION OF WELL DRILLING



1. 1,750,000 electrified farms have no water systems.
2. 2,000,000 additional farms are planned for electrification within 5 years after war ends.
3. 2,000,000 non-farm prospects for water systems are estimated by authorities.
4. The COMPLETE DEMING LINE offers you every type and size of pump and water system to blanket your customers' needs.
5. Deming and the Deming Distributor nearest your business territory are prepared to cooperate with you to insure your success.

Those 5 points certainly make a rosy outlook for your profession of well drilling!

DEMING

THE COMPLETE LINE

PUMPS AND WATER SYSTEMS

The Deming Company · Salem, Ohio

NEWS OF THE MONTH

Mich. Convention

ANOTHER informative meeting awaits drillers planning to attend the 1944 convention of the Michigan Well Drillers' Association, according to Harold Armstrong, convention chairman and Association secretary.

Plans call for emphasis on current problems in the two day meeting which will take place at the Hotel Olds, Lansing, on June 9 and 10. The annual banquet and entertainment are again assured, Armstrong reports.

'Pump School' Is Held By Deming

A "PUMP SCHOOL" to prepare salesmen, jobbers, and distributors for postwar has been established by The Deming Company, according to a recent issue of the company's house organ, *The Pump-Kin.*

Laboratory equipped, the school offers a course covering several days of intensive training. Fundamental principles of hydraulics and pump application are stressed in the program, which includes disassembling and assembling pumps and installing a deep well turbine.

New Jack Catalog

THE new 60-page catalog and manual of Simplex Lever, Screw and Hydraulic Jacks, No. 44, has just been published and is available from Templeton, Kenly & Co., 1020 S. Central Ave., Chicago (44), Illinois.

Pictures, descriptions, dimensions, capacities and weights of hundreds of jacks in sizes from 3 to 100-tons capacity and approved under Government Limitation Order L-322 are fully detailed in this book.

Also contained are operating and maintenance instructions on all types of industrial jacks.

Feature pages show jacks in war applications and lists of jacks by types for ready reference.

Postwar Study Gives Outlook For Industry

DESIGNED to help untangle the many conflicting statements concerning our post-war economy, 286 of the most vital peace-time plans and projects now underway in American industry have just been summarized in "Post-War Planning Now," the latest transition study published by the N. Y. Journal of Commerce.

The actual peacetime outlook in 56 major industries; descriptive details of new products, services and processes; and the formula for a gradual lifting of price, priority and ration controls are thus compiled for the first time under one cover.

All the material for this second edition of "Post-War Planning Now" was obtained from data furnished by key industrialists, government and trade association officials. Copies may be had at 25 cents each from the N. Y. Journal of Commerce, 63 Park Row, New York 15, N. Y.

Joins Institute

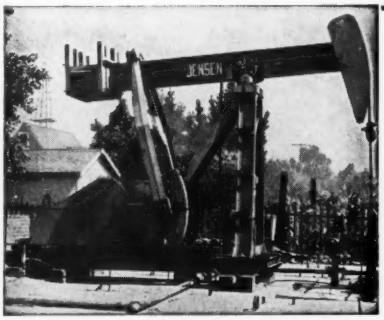
WALTER H. BOQUIST, comptroller of the Hackensack Water Co., Weehawken, New Jersey, has been elected to membership in the Controllers Institute of America. The Institute is a technical and professional organization of controllers devoted to improvement of controllership procedure.

Cool Water For Navy Crews

A LARGER supply of cool drinking water for men aboard fighting ships is one of the accomplishments described recently in "Wartime Engineering," an annual publication reporting technical contributions to the war effort by the engineering staffs of the Westinghouse Electric and Manufacturing Company.

Cool drinking water was rarely available for Navy crews in previous wars. Ordinary water coolers can produce hourly 10 gallons of water chilled to 50 degrees. On land these coolers operate with the incoming water no warmer than 80 degrees but at sea the water in a ship's tanks may be close to 100 degrees. That doubles the job of cooling.

By devising a more efficient precooler, Westinghouse engineers converted the ordinary cooler into one suitable for Navy use. The new precooler obtains about three times more cold transfer by using a large drain pipe and brazing the incoming water coil inside it. This allows the chilled waste water to cascade over the warm-water tubing.



Why Drillers Recommend the JENSEN

Water from any well you drill must be CHEAP and DEPENDABLE if you get credit for a good job.

And so you back up your own work when you recommend a JENSEN Water Well Pumping Unit, product of 24 years of experience. JENSEN units are saving money and making water wells more satisfactory for cities, airports, national parks, industries, public utilities, mines, farms and ranches throughout the United States and in many far corners of the world.

Bulletin No. 26 Free on Request

Protect your reputation — add to the success of your work — recommend the JENSEN Water Well Pumping Unit. Drillers are the best friends we have.

JENSEN BROS. MFG. CO.

14th and Pacific Streets, COFFEYVILLE, KANSAS, U. S. A.

EXPORT OFFICE: 50 CHURCH ST., NEW YORK CITY, NEW YORK

Productive Uses Of Water Illustrated

"STEP UP, Speed Up, Your Food Production With Running Water" is the title of the 1944 promotional booklet issued by the Electric Water Systems Council for distribution among farmers.

Printed in three colors and profusely illustrated, the booklet brings to the attention of farmers the many productive uses of running water.

Farmers are told how running water speeds up the production of beef, pork, and mutton and how more milk can be produced with less labor when water is piped to the dairy barn. The advantages of running water to the poultry farmer are explained. There is also a section on running water as a means of increasing the production of vegetables and the importance of running water for fire protection.

In an important section of the booklet, farmers are urged to put the reserve capacities of their water systems to work.

"If your present water system isn't being fully employed to increase production and save labor, see your water system dealer and get his suggestions on how your system can be extended to provide you with greater service, or how you may procure a farm water system of greater capacity," the booklet suggests.

In the last pages of the booklet farmers are advised to plan now for "future home happiness with running water."

On these pages, illustrated with attractive photographs of farm bathrooms, kitchens, and laundries, farmers are urged to "plan now to get a water system first, ahead of other post-war purchases of less importance."

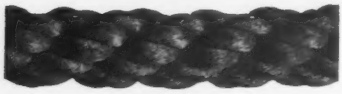
"Farm water systems," the booklet says, "are now available in increasing quantities. See your local dealer and let him tell you how to obtain the one you need for your farm and the additional comforts you are planning for tomorrow."

Farmers are also reminded of the importance of keeping every water system in good repair. In this connection reference is made to the booklet issued last year entitled "Timely Tips on Wartime Care and Maintenance of Electric Farm Pumps and Water Systems." For copies of this booklet, farmers are referred to their dealers.

Dealers can obtain copies of both booklets in quantity from the manufacturers of electric farm pumps and water systems participating in the Council's program.

ATTENTION DRILLERS!

FITLER
"COMMANDO BRAND"
SISAL DRILLING CABLE



for use in water well and blast hole drilling is especially constructed to give it plenty of spring and is lubricated against internal friction.

If your Dealer cannot supply you—write direct for information.

THE EDWIN H. FITLER CO.
Established 1804
5625 Tacony Street
PHILADELPHIA 24, PA.

"MYERS PUMPS Help Us Keep FOUR DRILLING RIGS Busy"

Says Massachusetts Driller

"We operate four drilling machines and the big reason for our continued growth is that we have won and held the confidence of our customers," says the Olson Artesian Well Company. "This confidence is due in no small part to the dependable performance of Myers Pumps. We sell a lot of them and they mean nice extra profits."

Yes, a good well deserves a good pump. The reliable, low-cost operation of Myers lifetime pumps will help you get more drilling jobs and make more money. Write for catalog on Myers Pumps and Water Systems.

THE F. E. MYERS & BRO. COMPANY
235 Church St., Ashland, Ohio

FROM THE MAILBAG

This page is open to any of our readers having questions to ask relating to drilling, driving pipe, dressing bits, etc. All letters will be answered promptly by experienced drillers and engineers who are qualified to give intelligent advice on these subjects. We will publish as many letters of general interest as space will permit. Address: The Driller, South Milwaukee, Wis.

Sirs:

I am drilling a well and am having trouble with it. At present we are down 100 feet. Somewhere in the well there is a pocket of small rocks which feed into hole whenever the water in the hole rises to the level of the pocket. I have cemented the formation three times without success.

Is there a certain kind of cement to use in shutting off the water and loose material? Is there something one can mix with the cement to make it set tighter? How long should the cement stand before it is drilled out? I have been letting it stand 36 hours.

R. L. H. Washington.

At first glance it appears to be a case of improper preparation of the grout mixture and failure to give the cement sufficient time for setting. From three to seven days is usually allowed for setting of the grout whereas we note you state you had been letting the cement stand around 36 hours before drilling out.

Portland cement, properly prepared and handled, will assume a permanent and durable form for use in the construction or finishing of water wells. Best results are obtained by the use of neat cement and water in the ratio of one bag (cubic foot of fresh cement) free from lumps, to 4½ to 5 gallons of clean drinkable water; if absolutely necessary up to 5½ gallons are permissible. Hydrated lime to the extent of 10% of the volume of cement may be added to make the grout mix more fluid and thereby facilitate placement by the pumping equipment. Mixing of cement or cement and hydrated lime must be thorough.

The grout material must be placed at the bottom of the space and grouted upward. The amount of cement required depends on the condition of the formation through which grouting is done. Generally speaking an allowance of from 25 to 100% in excess of the calculated amount should be available for use. We suggest you write for bulletin "Methods of Cement Grouting for Sanitary Protection of Wells" prepared by the Wisconsin State Board of Health, Division of Well Drilling, Bureau of Sanitary Engineering, Madison, Wisconsin. We believe you will find information contained in this bulletin very interesting and helpful in carrying on your grouting operations.

Sirs:

Please inform me as to the best way to cut out water in a six-inch well I am drilling. At 90 feet we struck a bad water vein which extended through to a depth of 105 feet where we struck granite. We drove six-inch pipe into the granite as far as we could, but this did not cut off the water.

P. D. H. Arkansas.

The only effective and permanent method for shutting off pollution from surface or sub-surface sources is by cement grouting.

It will be necessary in your case to pull back the six-inch pipe, pouring the grout mixture in from the top of the casing in one continuous mass so that it will work up around the casing at the lower end. After the grout has been forced up around the annular space, the casing pipe should then be lowered or forced to the bottom.

Proper preparation of the grout

mixture is of utmost importance. Best results are obtained by the use of neat cement and water in the ratio of one bag (cubic foot), of fresh cement (free from lumps), to 4½ to five gallons of clean, drinkable water; if absolutely necessary, up to 5½ gallons are permissible. Hydrated lime to the extent of 10% of the volume of cement may be added to make the grout mix more fluid and thereby facilitate placement by the pumping equipment. Mixing of cement or cement and hydrated lime must be thorough.

As stated above, the grout mixture is pumped through the casing pipe, discharged from it near the bottom of the annular space and from that point it flows upward, around the casing pipe, until the annular space is filled. Any water in the annular space moves upward before the grout, carrying with it any suspended foreign particles. If you have never used cement grout for sanitary protection of wells, we suggest you write to the Wisconsin State Board of Health, Division of Well Drilling, Bureau of Sanitary Engineering, Madison, Wis., for a copy of bulletin they published in July 1938, entitled "Methods of Cement Grouting for Sanitary Protection of Wells" which we believe will be of interest and helpful to you.

Who's Who?

ANOTHER note on manpower is expressed by Charles Wilson of Southern California who says: "I'm both a well driller and helper. Sometimes when I'm a helper I get sore at the boss. When I'm the boss I get sore at the helper. I don't know whether to pay myself as a helper or as an operator. What is the O.P.A. rule in a case like this?"

— Drill-A-Gram

WANT MORE HOLE IN LESS TIME?

NO. 735

For shallow drilling a line with the elasticity of Macwhyte "Hi-Lastic" is *right* for your spudding machine . . . because it gives you more hole in less time. That means more money in your pocket. With "Hi-Lastic" you can carry tools higher, make a longer stroke. Internally lubricated. Needs no manila cracker. Sizes to handle standard tools.

For deep wells, drillers have long used Macwhyte's Standard Tool Line. Special design. High elasticity. Gives long, hard, sharp blows.

For fast bailing, try Macwhyte Sand Lines. Made in coarse laid (6 x 7) and soft laid (6 x 19) constructions . . . in mild plow steel.

MACWHYTE COMPANY

2939 Fourteenth Avenue
Kenosha, Wisconsin

Let's all back the attack — buy another War Bond!

ARMY E NAVY

WIT BITS

A patient was being discharged from a mental hospital as cured.

As the patient was preparing to leave, the superintendent called him in and asked about his plans.

"Well," replied the patient, "I was admitted to the bar so I may practice law. I used to be an accountant, so I may become a bookkeeper. I speak six languages, so I could be an interpreter. If I find the going tough, I may become a house painter or a carpenter." With that he arose, placed his left hand on his hip, the back of his other hand against his forehead, extended his fingers, and added, "Or—I may become a tea kettle!"

"Yes, son, I'm a self-made man."

"Gee, dad, that's what I like about you. You take the blame for everything."

Just as the dentist was leaving, his telephone bell rang. He answered it and found that a patient wished to come that afternoon. "I'm afraid I can't give you an appointment for this afternoon," the dentist replied. "I have 18 cavities to fill."

And he hung up the receiver and hurried off to the golf course.

Garageman (to doctor-motorist): "It's a very serious case, Doc. I'm afraid I'll have to call in a brake specialist for consultation."

"By the way, who is that long and lank girl standing over there?"

"Sh! She used to be long and lank, but she's just inherited $100,000. She's tall and stately now."

Teacher: "How old is your father?"

Tommy: "Thirty-eight, sir."

Teacher: "Well, I must give you homework more suited to his age."

And what did the man at the garage say was wrong with your tires?

He said the air was beginning to show through.

As business was a bit dull in town, the carpet-sweeper salesman thought he'd try the wide open spaces. Presently he came to a remote cottage, at the door of which stood an extremely tough-looking man.

But when he began his sales talk the cottager interrupted him.

"Don't waste your breath, I've got a carpet-sweeper already."

"Good. Then I can make you a splendid allowance for your old sweeper in part payment for this new model."

"No, I won't. After all, I took 'er for better or wuss, didn't I?"

The street-corner orator had been called on to answer more questions than he expected and he was becoming rather muddled.

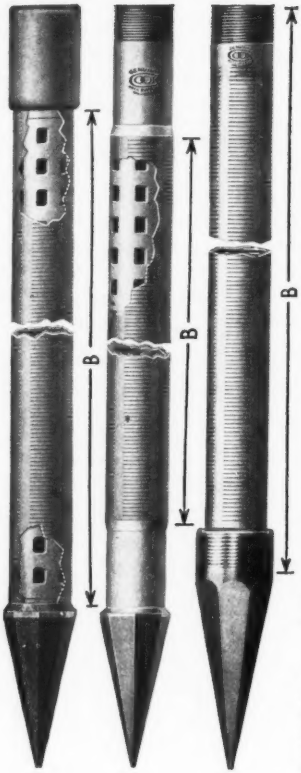
"Tell them all you know," shouted a heckler during an awkward pause. "It won't take you long."

"I'll tell them all we both know," replied the orator, "and it won't take me any longer!"

"Say, Aunt Melissah, what am a para-trooper?"

"Well, Honey, a para-trooper am a soljer what climbs down trees he never clumb up."

Cook Drive and Flush Well Points



Two features distinguish COOK Drive and Flush Well Points—efficiency and durability.

The Skeleton Points are punched with rectangular perforations to afford the largest possible inlet area, and are galvanized after punching.

The COOK BRASS Tube Strainer jacketed over the Skeleton Point will not tear and will not clog like wire cloth and perforated sheet brass and is less impaired by corrosive waters.

New Pipe is used exclusively in COOK Well Points.

The slots are cut with an accuracy of one thousandths of an inch. They vary in size from Slot No. 6, equal to 6/1000 inch, up to Slot No. 187, equal to 187/1000 inch. Intermediate and larger-sized slots can be cut. The selection of slot size to be used is determined by the coarsness of the sand to be excluded. In a sand of uniformly fine grains a slot must be chosen which will keep out practically all the sand; but in mixed sand and gravel a slot should be selected to guard against the coarser particles only.

Figure 62 consists of Skeleton Point jacketed with COOK Brass Tube Strainer (B). A shoulder turned on Coupling and one on Driving Plug make a free, uniform waterway between skeleton and jacket.

Figure 62SS has COOK Brass Tube Strainer (B), soldered to skeleton. This Drive Well Point has won great popularity because of its simplicity and efficiency.

Figure 62HB shows a Drive Well Point made of heavy-walled, seamless brass tubing, iron pipe size, with a bronze Driving Plug at bottom. Figure 62HB will be furnished, at the same price, with a steel Driving Plug, if so specified. This is the HEAVIEST all brass Well Point on the market. It is slotted the same as the standard COOK strainer, giving you a perfect self-cleaning "V" shaped slot. This slotting is just as accurate as on the regular COOK strainer, making it ideal for use in medium and fine sands.

GENUINE COOK WELL SUPPLIES
REG. U.S. PAT. OFF.

A. D. COOK, Inc.
LAWRENCEBURG - INDIANA

DEEP-WELL COOK PUMPS
REG. U.S. PAT. OFF.

"Oil" Well Goes Artesian

by C. M. LITTLEJOHN

PEOPLE of Hermiston, Oregon, now get their water supply for drinking, ablutions, household, and utilitarian purposes from an artesian well, first drilled for oil some 20 years ago.

Only this Autumn, the artesian water system of the Oregon community was connected to provide an excellent flow for Hermiston residents. Their local system, unhooked from a previous supply which proved unsatisfactory, was freshly attached to the $15,000 dream well, where the hopes and aspirations of a group of oil promoters were shattered years before.

Drillers, in the wake of considerable oil promotion and stock-selling, drilled for oil in that sector of Umatilla County two decades ago.

In due course, drillers were engaged to prove the claim of geological signs, or oil indications. They at first encountered 20 feet of sand and gravel, 20 feet of basalt, 80 feet of alluvial deposits, another 80 feet of hard basalt, and then a further layer of alluvial deposits. Following this their drills ground into extremely hard rock, and the drilling began to slow down.

After going slowly through 175 feet of this hard-rock stratum, the drillers punctured a seam in which there was a free flow of water. An artesian well had been brought in, and the hopes for oil were doomed.

For twenty years the artesian flow has idled over the terrain, unused, until the present hook-up. It now provides water to Hermiston dwellers, who find the water palatable.

Have you tried to get

AMERICAN TIGER BRAND "MOR-SPRING" WIRE LINES . . . *lately?*

● When America was plunged into war, we were asked to put practically our entire wire rope production at the service of Uncle Sam.

As a result we have had to disappoint some of our customers. They were prompt to realize that it was not only a case of military necessity but to their ultimate advantage to stand aside for the time being. We are grateful for their cooperation.

But today a steadily growing amount of TIGER BRAND is being made available for use here at home. So, when you need good wire lines, give us a call. The chances are becoming increasingly better that we may be able to supply you with your old favorite, TIGER BRAND "Mor-Spring"—today even a better product because of its war service.

AMERICAN STEEL & WIRE COMPANY
Cleveland, Chicago and New York
COLUMBIA STEEL COMPANY
San Francisco
United States Steel Export Company, New York

UNITED STATES STEEL

Pump Priority Guide

A PUMP priority guide, giving a table of necessary ratings as of March 10, has been issued to its distributors by the Deming Company, Salem, Ohio.

The guide shows the rating or information the dealer must obtain from the user, distributor from dealer, and manufacturer from distributor. The guide covers various types of pumps, and distinguishes between farm use and non-farm use.

The guide is obtainable by writing the Deming Company, Salem, Ohio.

Portable Heater Has Many Uses

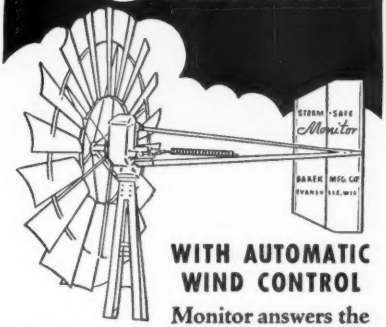
A NEW portable heater, which revolutionizes prevailing standards of dependability of such equipment, has high heating capacity and powerful heat delivery, and can be used in many applications, is announced by Surface Combustion, Toledo, Ohio.

The numerous applications for the unit include thawing frozen rolling equipment treads, brake drums, radiators, etc.; heating personnel outdoors in subzero weather; localized heating in locations beyond the limits of regular heating systems.

According to figures listed in *"Ground Water"* by C. F. Tolman, there would be a layer of water two feet think all over the globe if all of the water vapor in the atmosphere on an average summer day were precipitated. Figured in gallons, that's more water than you get from a well in a long, long time.

Incidentally, all ground water has as its source the water vapor in the air. It's the heat energy from the sun which keeps water, though heavier than air, suspended.

Coming! NEW Monitors



WITH AUTOMATIC WIND CONTROL

Monitor answers the call for new windmills to keep farm wells pumping! Increased manufacture has been officially authorized, including new towers and replacement parts to keep old windmills in service wherever possible.

The new Monitors are regulation models with automatic Wind Governor—constant pumping speed and safe control in varying wind velocity. This is the windmill with Tobin bronze bearings and Ball-Bearing turntable, sensitive to a slight breeze yet safe in strong winds.

Windmill repairs are ration-free. New windmills require certificate MR-22. . . . Your nearest Monitor branch can help you keep farm wells flowing for Victory!

Monitor

WINDMILLS
PUMPS
PUMPJACKS
WELL SUPPLIES

• BRANCHES •

BAKER MFG. CO.: Minneapolis, Minn.; Madison, Wis.; Fort Dodge, Ia.; Cedar Rapids, Ia.; Omaha, Neb.; Kansas City, Mo.; Enid, Okla.; Hutchinson, Kansas
BAKER MFG. LTD., Winnipeg, Canada
AXTELL CO.: Fort Worth, Tex.; Amarillo, Tex.; Lubbock, Tex.; San Angelo, Tex.

BAKER MANUFACTURING CO., EVANSVILLE, WIS.

Cerak and Bro. . . .

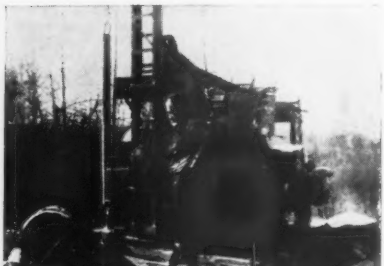
(Continued from page 7)

core rig, two service trucks, a large truck for moving equipment from job to job, and a tractor. "Sometimes, when we find grades too steep for the truck we put the tractor to work. That's probably why we've never yet found a place too tough to get into," Al comments. The core rig is used for drilling small test holes.

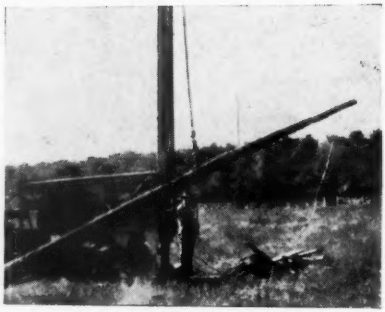
With this line-up of equipment, the Ceraks in normal times keep two operators and a helper, in addition to themselves, constantly busy. "Our two bigger machines are kept busy all of the time. The only time they're in the yard is when repairs are necessary—and that's seldom," Al points out.

Cerak wells normally range in flow from three to about 20 gpm. Wells which supply over that amount are considered exceptionally good wells. The average depth for their wells is about 150 feet.

When it comes to mention of unusual jobs, Al and Paul believe they have one which ranks with the best. Their "topper" occurred when the 21-W was putting down a 6-incher



• Here's where the Ceraks drilled 12 feet and hit—of all things—a meteorite. The job was located near Croton, N. Y.



• The 21-W is handy for jobs other than well drilling—the Ceraks found out. Here the rig is shown being used for raising antenna poles for the Associated Press.

near Croton, where ledge rock runs about 20 feet from the surface. After drilling down only 12-feet, the bit struck what was believed to be a boulder—which they felt could be broken with a little pounding.

"We pounded, all right," recalls Al. "In fact, we pounded for a couple of hours and made no noticeable headway, and after pulling up the tool string, we found that our bit was flat as a board."

Their hunch, then, was that in dressing the bit they had somehow missed on their tempering. However, further efforts repeated over a span of five days with various bits produced substantially the same result, for after all this pounding they found they'd still made only 4 inches of hole!

Perplexing? That and more—not only to the Ceraks but also to the contractor who was excavating the basement for the same property. "He had a power shovel with which he was digging the cellar excavation, and he was as much interested in what could be down there as I was," Al relates.

The first 12 feet was sand and could be dug very quickly with the shovel, so it wasn't long before a deal

was arranged with the contractor—he to furnish the machine and the Ceraks to furnish the labor for excavating around the well-hole.

They found the trouble in a short time—it was a meteorite which had become buried at 12 feet! "It was about four feet square and three feet thick, and we had started to drill right into the middle of it!" Al chuckles.

Removal of the meteorite solved all of the trouble on that hole, and the well was soon completed at 140 feet, delivering 8 gpm. You can be sure Al doesn't care to drill any more holes through meteorites!

He and his brother Paul *do* want to keep on drilling plenty of wells, however, and from the way calls keep coming in, it looks as if they're going to. "We never have to canvas for work," Al remarks, "for all of our work comes to us by phone." There's plenty of reason for that, too, because one of the cardinal principles on which the Ceraks operate is never to rush one job in order to get at the next. They believe in doing every job right for they appreciate the value of satisfied customers.

Aquagel . . .

(Continued from page 5)

Aquagel and water was poured into the 8 inch pipe to lubricate the outside of the 6 inch pipe as it was driven through the formation where no Aquagel was used while drilling.

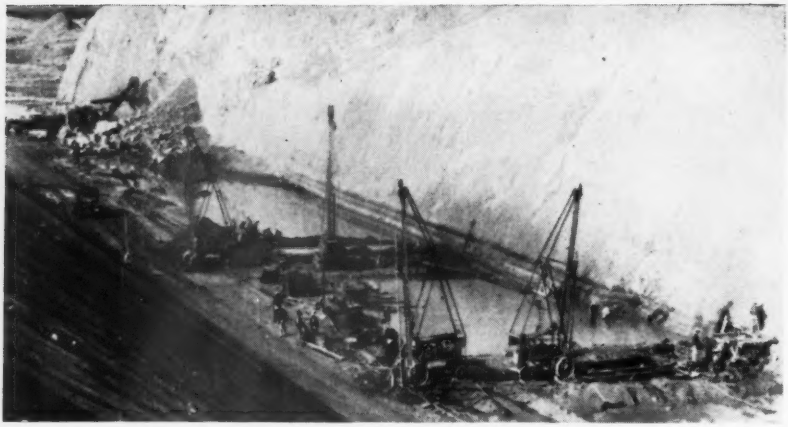
Editor's Note: Sold by the Baroid Sales Division of the National Lead Company, Aquagel is obtainable from distributors in most of the principal cities of the United States. Information regarding the availability of Aquagel in your territory may be obtained by writing Baroid Sales Division, National Lead Company, 830 Ducommun Street, Los Angeles, California.

AQUAGEL
OVERCOMES MANY DIFFICULTIES IN CABLE TOOL DRILLING OF WATER WELLS

•AQUAGEL, a gel-forming colloidal drilling clay, is very beneficial in water well drilling. Such troubles as caving, quicksands and stuck casing are overcome with AQUAGEL. Casing recovery is aided, hole made faster and wear and abrasion are minimized. When driving pipe through heaving sand, the sand often packs around the pipe and prevents further progress. This condition can be avoided and the pipe driven easily if AQUAGEL is used to mud up the sand and lubricate the pipe.

BAROID SALES DIVISION
NATIONAL LEAD COMPANY
BAROID SALES OFFICES:
LOS ANGELES 12•TULSA 3•HOUSTON 2

Drilling In Mexico



• Bucyrus-Erie 21-W and 22-W water well drills being used by the National Commission of Irrigation of Mexico for blast hole drilling in a quarry at El Palmoto.

BARGAIN COUNTER

To the reader who wishes to advertise used equipment in "Bargain Counter" Section.

All advertising in this section is payable in advance. Enclose your check or money order with copy. Rate: 30c per line. Minimum charge $1.20. No discounts; no commissions. Read these instructions carefully. The average line contains 28 characters (20 characters if all capital letters are used). Count spaces and punctuation as one character each. Allow 10 characters for box number if blind advertisement is desired. Count your own copy to save delay. Holding up your advertisement one month to secure approval of revised copy or an additional remittance, may cost you real money in a lost sale. Be sure to enclose the correct amount of money with your order. Closing date—10th of preceding month. Example—January issue closes December 10th.

To the reader wishing to answer "Bargain Counter" Section advertisements appearing on these pages:

Be sure to address your inquiry to the advertiser by using the correct box number. Mail your letter in care of THE DRILLER, South Milwaukee, Wisconsin. Write each advertiser a separate letter. Do not write us for name and address of advertiser. This information will not be given out. We have no information about the equipment advertised other than that shown in the advertisements themselves.

FOR SALE

1 Test Pump 6" cyl., 140' gal. pipe, 100 g.p.m. 1 Test Pump cylinder 4" x54" brass. Priced for quick sale. Write or phone M. Acker, South 93rd & West Cold Spring, R. 4, West Allis, Wis. Phone: Greenfield 4350.

For Sale

1—8" suction 6" discharge cent. pump with fittings, and rubber hose and foot valve. Like new. 1—double drum Winch. Cap. 2000' cable, 8" x 48" drive pulley. No power, with winch. Wt. 4000 lbs. Priced for quick sale.

Box 0826

WANTED TO BUY

One Bucyrus-Erie Drill No. 22 W, 24 W, or 33. 71 Speed Star or Keystone No. 50 with or without tools for 4" work. Preferable, truck mounted. Box 0316

LOOK AHEAD to Greater Profits with Bucyrus-Eries

Businessmen with foresight — men who are looking ahead and planning their postwar futures — are looking over equipment in their fields, picking out the units they'll need, choosing the machines that will bring the most in profitable returns.

That's <u>your</u> cue to investigate the Bucyrus-Erie line of water well drills now and get the full story on the profit advantages they offer. Speed in making hole, in setting up, in moving, low cost operation and maintenance — in fact, all the performance features that bring you the best in profitable drilling — are yours with Bucyrus-Eries. That's why you can look ahead to greater profits if you include Bucyrus-Eries in your plans.

J-87

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DRILLER

A journal for water well drillers

SO. MILWAUKEE WIS. U.S.A.

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